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Case Docket No. 7304  
Date: February 21, 2008

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Re: Application of: Jaffee  
Serial No.: 10/607,858  
Filed: June 27, 2003

Art Unit: 1771  
Examiner: CHOI, Peter Y.

For: GYPSUM BOARD FACED WITH NON-WOVEN GLASS FIBER MAT

Transmitted herewith is/are the following document(s) related to the above-identified application:

- ☐ Notice of Appeal  
☒ Reply Brief (15 pages)  
☐ Request for Oral Hearing

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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of: Alan M. Jaffee                      Group Art Unit: 1771  
Serial No.: 10/607,858                      Examiner: Peter Y. Choi  
Filed: June 27, 2003  
For: Gypsum Board Faced With Non-Woven Glass Fiber Mat  
Docket No.: 7304/0140-2

February 21, 2008

**BOX BOPAI**  
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**REPLY BRIEF FOR APPELLANTS**

This Reply Brief is submitted pursuant to 37 C.F.R. 41.41 and is in response to the Examiner's Answer dated December 21, 2007 in the pending appeal of the above-identified application. It is submitted that no fee is due in connection with the filing of the instant Reply Brief.

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Response to Arguments in Examiner's Answer

Applicants respectfully note that Section (9) – Grounds of Rejection set forth in the Examiner's Answer (pages 3 – 9) repeats substantially verbatim portions of the Non-Final Rejection dated July 25, 2006, and the Final Rejection dated December 27, 2006, from which the present appeal is taken. In particular, the Examiner's Answer repeats remarks made in the Non-Final Rejection with respect to: (i) claims 1-6, 8-15, 17-19, 21-24, 26-27, and 29-32, which were rejected under 35 USC 103(a) as being unpatentable over US Patent 5,772,846 to Jaffee; (ii) claim 20, which was rejected under 35 USC 103(a) as being unpatentable over Jaffee in view of US Patent 6,365,533 to Horner, Jr., et al.; and (iii) claim 25, which was rejected under 35 USC 103(a) as being unpatentable over Jaffee in view of US Patent 7,056,582 to Carbo.

Applicant/appellant has set forth his position with regard to each of the foregoing rejections in the Brief For Appellants dated August 17, 2007, and the Supplemental Appeal Brief dated October 12, 2007. The following additional remarks are filed with reference to the Examiner's Answer and, in particular, to Section (10) – Response to Argument.

Usage of the term "anticipation".

At page 10 of the Examiner's Answer, the following statement is made:

It should be noted that Appellant argues throughout Appellant's brief that Appellant believes that Jaffee does not "anticipate" the claimed subject matter. However, it is clear that the grounds for rejection is based on 35 USC 103(a).

Appellant respectfully traverses the basis for this remark. As made clear in the final two paragraphs of page 18 of Appellant's Brief, the necessity to address "anticipation" was predicated by at least fourteen instances in which the word "anticipates" or grammatical variants

was newly used in the December 27, 2006 Office Action. Appellant respectfully notes that earlier office actions in the instant matter used the term “anticipation” only in the context of rejections made under 35 USC 102. By way of contrast, the December 27 Office Action reversed previous acknowledgments by the Examiner that applicant’s ranges were not disclosed by the Jaffee reference; for the first time, the Examiner asserted various features were “anticipated.” For the sake of clarity and the convenience of the Board, Appellant specifically enumerated the Examiner’s usages of “anticipation” in footnote (4) at page 18 of the Appeal Brief, while also noting that there were apparently no rejections made under 35 USC 102.

It is respectfully submitted that the December 27 Office Action’s repeated juxtaposition of the “anticipated” formula with the citation of 35 USC 103(a), not 102, in fact made it far from clear that the rejection of claims over Jaffee was for obviousness, not anticipation, notwithstanding the Examiner’s assertion to the contrary. A careful review of the Appellant’s Brief reveals the context in which Appellant used the term “anticipation” (and its equivalents).<sup>1</sup> In almost every instance, Appellant was directly responding to express uses of the term by the Examiner in the Non-Final Rejection dated July 25, 2006, and the Final Rejection dated December 27, 2006. Appellant thus respectfully maintains that the implication of the Examiner’s comment (“Appellant argues throughout...”) is unwarranted and baseless.

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<sup>1</sup> The term “anticipation” (and its equivalents) were used in Appellant’s Brief at: page 18, ¶3 (quoting the December 27 Office Action) and 4; page 19, ¶¶1 and 2 (quoting the BPAI’s decision in *Ex parte Lee*); page 20, ¶3; page 43, ¶¶3 and 5 (both quoting the December 27 Office Action); page 45, ¶3 (quoting the *KSR* Supreme Court decision); page 46, ¶1 (also quoting *KSR*); page 47, ¶7 (quoting the December 27 Office Action); page 48, ¶2 (quoting the December 27 Office Action); page 50, ¶1 (quoting the December 27 Office Action); and page 53, last paragraph.

Rejection of claims 1-6, 8-15, 17-19, 21-24, 26-27, and 29-32 under 35 USC 103(a) as being unpatentable over US Patent 5,772,846 to Jaffee.

The Examiner has continued to assert a position that Appellant's claims do not preclude the fine polymer fibers disclosed in the non-woven mat disclosed by Jaffee. Appellant maintains that the Examiner's reading of Jaffee to arrive at this assertion is, at best, highly strained.

The language of feature (b) of present claim 1 is exemplary:

said first facer being a fibrous mat comprising a non-woven, glass fiber web bonded together with a resinous binder, and said glass fibers consisting essentially of chopped glass fibers having an average fiber diameter ranging from about 9.5 to 12.5  $\mu\text{m}$  and an average fiber length ranging from about 6 to 12 mm.

The Examiner apparently contends that the foregoing language does not exclude the presence of polymer fibers, notwithstanding the transitional term "consisting essentially of." Appellant respectfully submits that the Examiner's reasoning is tortured to the point of untenability.

Appellant has extensively briefed the circumstances that gave rise to the insertion of the transitional term "consisting essentially of" in Appellant's Brief, at page 21, final paragraph, through page 22, final paragraph. The present usage of "consisting essentially of" is submitted to reflect firmly established patent parlance. The transitional phrase "consisting essentially of" is employed in a manner that is consistent with the meaning delineated in MPEP §2111.03, which quotes *In re Herz*, 537 F.2d 549, 551-52, 190 USPQ 461, 463 (CCPA 1976). Appellant's Brief at 21. Such usage, articulated long ago in *Ex parte Davis*, 80 USPQ 448, 450 (Pat. Off. Bd. App. 1948), has since been repeatedly affirmed. See, e.g., *AK Steel Corp. v. Sollac*, 344 F.3d 1234, 1239, 68 USPQ2d 1280 (Fed. Cir. 2003).

Appellant submits that it is beyond dispute that the non-woven, glass fiber web recited by claim 1, feature (e), cannot include polymer microfibers that change the basic and material characteristics of the web. The Examiner's contention therefore has to be that, at best, the recited fibrous mat includes polymer microfibers apart from the non-woven, glass fiber web. However, Jaffee provides no support for this reading, and in fact leads a skilled person to a diametrically opposite conclusion. Attention is drawn to the following teaching in Jaffee:

The present invention provides a process of making a fibrous nonwoven mat, preferably containing a major portion of glass fibers and a minor portion of polymer fibers, such as PET polyester fibers, bound together with a latex containing a mixture of cross-linked vinyl chloride acrylate copolymer having a glass transition temperature as high as about 113 degrees F, preferably about 97 degrees F, and a small amount of a stearylated melamine. The process comprises forming a wet, nonwoven web containing a major proportion of glass fibers and a minor proportion of synthetic polymer fibers in a known manner, saturating the wet web with an aqueous latex binder described above and drying the mat at a temperature exceeding 250 degrees F. Col. 2, lines 37-49, emphasis added.

Thus, Jaffee unmistakably teaches a mat structure wherein the synthetic polymer fibers are a minor portion of the nonwoven web itself, and fully integrated and bound therein. There is not even a suggestion, let alone a disclosure, that the polymer fibers form another, separate component of the fibrous mat apart from the nonwoven web, or are in any way otherwise present in the fibrous mat.

To the contrary, the Examiner's contention that:

Appellant appears to argue that the *fibrous mat* consists essentially of chopped glass fibers, therefore providing a basis for Appellant's argument that additional polymer fibers are precluded from the claimed invention, Appellant does not claim such a limitation. (emphasis in the original). (Examiner's Answer at 11, final paragraph.)

misconstrues Appellant's argument. Clearly, Appellant's fibrous mat could not be recited as consisting essentially of chopped glass fibers, because such language would preclude the presence of other required functional components, most importantly the required binder. Rather, Appellant's claim 1 recites "a fibrous mat comprising a non-woven, glass fiber web bonded together with a resinous binder..." Importantly, the Examiner's paraphrase completely omits mention of the intermediate term "non-woven, glass fiber web." Appellant emphatically maintains that the use of the transitional term "consisting essentially of" precludes the presence of any fibers in the non-woven, glass fiber web that would "materially affect the basic and novel characteristic(s)" of the web. *Compare* MPEP §2111.03.

Attention is respectfully drawn to arguments developed in the Appellant's Brief, e.g. at page 25, first paragraph, through page 29, second paragraph. It is submitted that these arguments establish that the Jaffee reference itself teaches that the inclusion of glass or polymer microfibers in the aforementioned non-woven, glass fiber web has a clearly material effect on the basic and novel characteristics of the web. Accordingly, any substantial amount of polymer or glass microfiber present in Appellant's claimed fibrous mat cannot be included in the non-woven, glass fiber mat. If at all such microfibers are, *arguendo*, present, they must therefore be located elsewhere in the mat. It is submitted that a skilled artisan would not read the present specification in any manner that would contemplate fibers in the fibrous mat, but apart from the fiber web.

Appellant accordingly maintains that embodiments disclosed Jaffee that include any substantial component of glass or polymer microfibers are expressly precluded from

reading on independent claim 1. Inasmuch as substantially the same language is used in the other independent claims on appeal (claims 27, 29, and 32), the same arguments apply with equal force to those claims, as well as all the other claims dependent thereon.

Appellant respectfully submits that the Examiner's misreading of claim 1 as permitting the presence of substantial amounts of polymer microfiber extends to his treatment of claims 4, 5, and 6, which depend from claim 1 and further require that about 90%, 95%, and 97% of the chopped glass fibers, respectively, have a diameter within the range of about 9.5 and 12.5  $\mu\text{m}$ . Appellant maintains that a person having ordinary skill in the glass fiber arts would recognize that there is some statistical distribution of fiber diameters in chopped glass fibers produced by most, if not all, known commercial production processes. Such fibers could, therefore, satisfy the requirement of claim 1 concerning average fiber diameter while exhibiting a wide, statistically distributed range of individual diameters. The sequence of claims 4, 5, and 6 thus delineate preferred implementations calling for an increasingly tighter statistical distribution of fiber diameters. Because claim 1 does not permit the presence of substantial amounts of polymer microfiber, the discussion in the paragraph beginning at the bottom of page 12 of the Examiner's Answer is submitted not to be pertinent. Of course, the Examiner is correct in stating that the 90%, 95%, and 97% values are based solely on the glass fiber content. However, it is submitted that polymer fibers do not even bear on the calculation, because they are substantially precluded by the limitations of claim 1 inherited by dependent claims 4-6.



The Examiner has argued that a skilled person would be motivated to optimize the fiber diameter, length, proportion of glass fibers, and basis weight in order to create a composite with the desired properties such as flexibility and strength while minimizing skin irritation during installation. Apparently, the Examiner thus contends that the selection of particular fiber diameters and lengths, e.g. as recited by independent claims 1, 27, 29, and 32 and, in preferred implementations by various dependent claims, represents just this optimization.

However, Appellant respectfully traverses this indication for at least two reasons. First, there is no indication that the presently recited dimensional features even would result from an optimization of the properties identified by the Examiner, as opposed to the properties obtained by Appellant. Second, and more importantly, Appellant maintains that nothing in the Jaffee reference would even suggest the surprising and unexpected result afforded by the present mat and gypsum board made therewith, namely, a smooth surface sufficient to permit the gypsum board to be painted directly, without the need for extensive surface preparation. Appellant maintains this is no mere difference in degree that could be obtained by optimization, but rather a difference in kind, for which there is no expectation in the prior art. The Examiner demurs that the desirable properties are not recited by the claims. However, the Examiner has not pointed to any legal standard requiring specific inclusion of such a functional property. Absent any prior art recognition that Appellant's desirable property could be obtained, there is no basis for conducting any optimization of the dimensions.

To the contrary, Appellant maintains that the Examiner's position is not compatible with *In re Chu*, 66 F.3d 292, 299; 36 USPQ 2d 1089, 1095 [Fed. Cir. 1995], in which the court held that Chu's technical evidence relating to the frailty of fabric filters during pulse-jet cleaning clearly counters the assertion that placement of the catalyst in the baghouse is merely a "design choice." Specifically, the Court held that Chu's evidence regarding the violent "snapping" action during pulse-jet cleaning, the difficulty in stitching compartments including the capacity to withstand high temperatures, and problems encountered from variable path lengths due to settling of the catalyst particles in each compartment militated against a conclusion that placement of the SCR catalyst was merely a "design choice."

The Examiner has also misconstrued Appellant's citation of US Patent No. 4,637,951 with respect to Gill, arguing that Gill does not teach the invention of Jaffee and is not related as the closest art to Jaffee, since Gill requires glass microfibers having a mean diameter in the neighborhood of 1 $\mu$ m, whereas Jaffee does not require the inclusion of such fibers. Examiner's Answer at 14, second paragraph.

Appellant maintains that Gill does in fact teach certain species of non-woven, fibrous mat that employ fibers fall within the ranges delineated by Jaffee. Attention is respectfully drawn to Jaffee at col. 3, lines 42-45, which discloses addition of glass microfibers having diameters in the range of 0.4 – 2 microns, clearly encompassing the "neighborhood of 1 $\mu$ m" the Examiner attributes to Gill. Appellant cited Gill to establish that at least some mats falling squarely within the disclosure of Jaffee have a very low air permeability, i.e. a permeability of no greater than 225 cfm/ft<sup>2</sup>. Appellant thereby has established that the mat of Jaffee does not inherently have the air

permeability of at least about 300 cfm/ft<sup>2</sup> measured by the Frazier test, as recited by claim 31. Appellant knows of no reason why it is pertinent whether or not Gill is related as the closest art to Jaffee.

It is submitted that the Examiner's further appeal to US Patent No. 6,187,697 to Jaffee ("697") is unavailing, as a matter of logic. Appellant has not asserted that all the mats of Jaffee '846 have low air permeability. Rather, Appellant relied on Gill to establish that at least some Jaffee mats have low permeability. Having established that at least some mats have low permeability, Appellant maintains that logic compels the conclusion that the permeability of at least 300 cfm/ft<sup>2</sup> recited by claim 31 is not inherent by necessity in Jaffee mats. The Examiner apparently has relied on Jaffee '697 as allegedly establishing some trend in air permeability. However, Appellant maintains that any disclosure in Jaffee '697 is at best conclusory and does not rebut facts established by Appellant, and the logical conclusions that result.

At page 15, second paragraph, through page 19, first paragraph, the Examiner's Answer addresses Appellant's contention that the present invention provides mat and gypsum board that exhibit a surprising and unexpected level of surface smoothness.

Appellant respectfully submits that the new discussion in Section (10) does little more than reiterate the position set forth in previous Office Actions and in Section (9). It is also submitted that the Examiner's approach improperly segregates the teaching concerning comparative smoothness in the original specification (e.g., at page 7, lines 24-32; page 8, lines 2-14; and Example V) from the additional data provided by the Declarations of May 3, 2006 and October 24, 2006. *In re Rinehart*, 531 F.2d 1048, 1052; 189 USPQ 143 (CCPA 1976) (holding that "When prima facie obviousness is

established and evidence is submitted in rebuttal, the decision-maker must start over. Though the burden of going forward to rebut the prima facie case remains with the applicant, the question of whether that burden has been successfully carried requires that the entire path to decision be retraced.”)

Appellant continues to maintain that, taken together, the specification and declaration data establish that the observed smoothness is, indeed, surprising and unexpected, if for no other reason than that the resulting gypsum board is directly paintable.

Appellant respectfully objects to the Examiner's restatement of the Declaration of October 24, 2006. Attention is drawn to the following:

The Declaration only appears to show that a fiber with an average fiber diameter within the range of 8-16  $\mu\text{m}$  and with an average fiber length between 9-25 mm, specifically with an average fiber diameter of 11  $\mu\text{m}$  and an average fiber length of 12 mm is smoother than if the average fiber diameter and average fiber length were not 11  $\mu\text{m}$  and 12 mm respectively. (Examiner's Answer at 17.)

As set forth in the amendment dated October 24, 2006, which accompanied the declaration of the same date, the declaration data were submitted to establish the lengths of the glass fiber used to prepare the mats of Examples 2-4 of the original specification, e.g. as delineated by Table III and the mats set forth at page 7, lines 29-32 of the specification. The latter teaching compares the smoothness of mats made with fibers having a narrow fiber diameter distribution centered at 26, 15, 13, 8, and 5  $\mu\text{m}$  with mats made using 11  $\mu\text{m}$  fiber. The data thus clearly bracket applicant's claimed 9.5 to 12.5  $\mu\text{m}$  range. The Examiner, on the other hand, pretends that the data at best show results that are not representative of smoothness over the

entire claimed range, but only of one point.<sup>2</sup> Appellant maintains, however, that the results are sufficiently definitive to establish the claimed smoothness property.

Appellant further objects to the fractured logic with respect to the assumption made in the prior art that smaller diameter fibers produce smoother mat. *See, e.g.*, the specification at page 8, lines 2-4, setting forth the prior art's understanding. It is noted that Examiner has provided no evidentiary basis to counter this understanding. In the Examiner's Answer at page 18, second paragraph, the Examiner points to Jaffee's disclosure of preferred diameter ranges of 9 to 20  $\mu\text{m}$  and 10 to 16  $\mu\text{m}$ . However, Jaffee teaches that textile glass fibers may be as small as 5  $\mu\text{m}$ , not 9  $\mu\text{m}$  as the Examiner seemingly would have it. *See* col. 2, lines 14-15. It is thus submitted that only in hindsight would the Examiner's comparison with Jaffee's preferred ranges be pertinent. *See, e.g.*, Examiner's Answer at 18, second paragraph (stating that "Therefore, one of ordinary skill would be motivated to use glass fibers having average diameters closer to 9  $\mu\text{m}$  if desiring to form a smoother mat.") Nothing in the record connects Jaffee's selection of lower limits of 9  $\mu\text{m}$  or 10  $\mu\text{m}$  with smoothness, only with other mat properties. Therefore, Appellant respectfully maintains that the conclusion of the Examiner's Answer at page 19, lines 1-3, is impermissible hindsight.

It is submitted that the Examiner's position with respect to the weight percentages of fibers (Examiner's Answer at page 19, paragraph 2) is based on an erroneous understanding of claims 4-6. Further to the discussion hereinabove concerning claims 4-6, Appellant maintains that the restriction of each of these claims provides a successively tighter statistical distribution of fiber diameter around a center, average diameter. Any disclosure by Jaffee of a preferred diameter range, e.g. 10 to 16  $\mu\text{m}$  provides no information about the tightness of the distribution.

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<sup>2</sup> It is noted that the quoted statement erroneously refers to smoothness of "fiber," rather than smoothness of mats and gypsum board made with such fiber, as consistently set forth in the specification and the declarations in this case.

and so cannot anticipate the preferred implementations recited by claims 4-6. The alternative contention that one would have been motivated to optimize fiber diameter to create a composite with desired properties is at best speculative, because there is no indication even that such an optimization would attain the particular properties attained by Appellant's mat.

With respect to the flame resistance required by claim 26, the Examiner has asserted that merely because Jaffee does not expressly teach use of ASTM Method E84, Class 1 does not mean that the Jaffee mat would not pass said test. As a matter of logic, Appellant quite agrees. However, the logic set forth with respect to the air permeability of the mats disclosed by Jaffee and Gill, as discussed hereinabove, also applies to the flame resistance delineated by claim 26. That is to say, it is sufficient to establish that some mats within the ambit of the Jaffee disclosure are not flame resistant to be able to conclude that Jaffee mats do not inherently exhibit a level of flame resistance. It is well established that inherency must be established as a matter of necessity, not probability. For example, Appellant maintains that the polymer-containing mats would likely not satisfy the ASTM flame resistance, providing additional basis on which the patentability of claim 26 can be predicated.

Rejection of claim 20 under 35 USC 103(a) as being unpatentable over Jaffee in view of US Patent 6.365.533 to Horner, Jr., et al.

Appellant's Brief sets forth the argument that Horner fails to cure the lack of disclosure or suggestion in Jaffee of the gypsum board of claim 1, from which claim 20 depends.

Further, Appellant continues to maintain that the Examiner has not complied with the requirement to establish the motivation of a skilled person to look to Horner for motivation to employ kraft paper as a second facer. Rather, Appellant submits that the skilled person would

not have such motivation in view of Horner's failure to disclose or suggest any gypsum board product.

Rejection of claim 25 under 35 USC 103(a) as being unpatentable over Jaffee in view of US Patent 7,056,582 to Carbo.

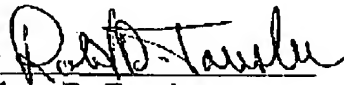
Appellant's Brief sets forth the argument that Carbo fails to cure the lack of disclosure or suggestion in Jaffee of the gypsum board of claim 1, from which claim 25 depends.

### CONCLUSION

In light of the foregoing remarks and those set forth in Appellant's Brief and Supplemental Appellant's Brief, it is respectfully submitted that the gypsum board of claim 1 (and claims 2-6 and 8-26 dependent thereon); the improved gypsum board of claim 27; the non-woven fibrous mat of claim 29 (and claims 30-31 dependent thereon); and the hydraulic set board of claim 32 are not disclosed or suggested by any combination of the art references applied, and thus meet the conditions for patentability required by 35 USC §103(a).

Accordingly, reversal of the rejection of claims 1-6, 8-15, 17-27, and 29-32 under 35 USC §103(a), and allowance of the present application, are earnestly solicited.

Respectfully submitted,  
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